

Claims

**Claim 1.** An optical fiber array apparatus comprising  
a housing,

a front mask coupled to said housing and having a  
matrix of fiber seating openings therethrough, each said  
opening having one or more side walls,

an unsheathed optical fiber portion extending through  
each of said openings and having an outer cylindrical side  
surface,

means for pressing said side surface into engagement  
with said one or more side walls.

**Claim 2.** The apparatus of Claim 1 wherein each said  
front mask opening is larger in cross section than the  
cross section of said fiber portion and bonding material  
substantially fills a void between the fiber portion and  
opening side wall.

**Claim 3.** The apparatus of Claim 1 wherein said front  
mask includes a rear surface and said means is located  
rearward of said rear surface.

**Claim 4.** The apparatus of Claim 3 wherein said means  
includes a wafer having a matrix of wafer openings  
initially substantially aligned with said front mask  
openings to enable longitudinal translation and seating of

said optical fibers through said front mask openings, each of said wafer openings having at least one wafer opening side wall for pressing on a second portion of said optical fiber when said wafer is moved relative to said front mask in a predetermined transverse direction.

**Claim 5.** The apparatus of Claim 2 wherein said means further includes a second wafer located rearward of said wafer and having a matrix of second wafer openings substantially aligned with the front face openings and, each said second wafer opening having at least one side wall for engaging a third portion of said optical fiber when said wafer is moved from its initial position for limiting the lateral displacement of said third portion.

**Claim 6.** The apparatus of Claim 1 wherein said means comprises at least one movable arm defined by said front mask.

**Claim 7.** The apparatus of Claim 6 wherein said means comprises at least two movable arms defined by said front mask.

**Claim 8.** The apparatus of Claim 6 wherein said arm comprises a distal end that forms a wall of the respective opening.

**Claim 9.** The apparatus of Claim 8 wherein said distal end is located in an initial position relative to said one

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or more side walls and is moved laterally away from said one or more side walls by said fiber when inserted through said opening.

**Claim 10.** The apparatus of Claim 8 wherein said at least one side wall comprises at least two side walls.

**Claim 11.** The apparatus of Claim 10 wherein said at least two side walls intersect each other and said fiber outer surface contacts each of said side walls and said distal end.

**Claim 12.** The apparatus of Claim 10 wherein said at least one side wall is non-movable relative said front mask.

**Claim 13.** The apparatus of Claim 1 wherein said means includes an element of flexible material forming one side wall of each front mask opening.

**Claim 14.** The apparatus of Claim 13 wherein said fiber engages and flexes said element when said fiber is inserted into its respective opening.

**Claim 15.** The apparatus of Claim 14 wherein each of said elements are part of elongated members.

**Claim 16.** The apparatus of Claim 15 wherein said front mask comprises a plurality of elongated transverse slots and each of said openings opens into one of said slots.

**Claim 17.** The apparatus of Claim 16 wherein each of said members is secured in one of said slots.

**Claim 18.** The apparatus of Claim 17 wherein said front masks includes projections projecting partially into each of said slot and each projection being located between two of said openings for restricting the movement of respective members portions when a fiber is inserted through the respective opening therebetween.